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ECONOMIC PAPERS

Contents

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RATIONALIZATION AND MONOPOLY

—— With Reference to the Concentration of Economic Power ——

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INTRODUCTION

This treatise is to investigate the relation between rationalization and monopoly, and, in particular, to analyse it from the viewpoint of the concentration of economic power. Some economists, especially Marxists, assert that the concentration of economic power is in any case incorporated with the monopoly, either aiming at or realizing the control of market. Consequently, even if the concentration of economic power is intended for the purpose of rationalizing the industry, it is understood by them that the latter is simply a means of attaining monopoly. This assertion is based upon or expresses the theory of so-called monopolistic capitalism.

I have always had a quite contrary view to this. Of course monopoly contains as its constituent element the concentration of economic power, however the latter does not necessarily belong to the former. Furthermore rationalization is a different concept from monopoly, and between these two there is generally no direct co-relation. Only in a special case, rationalization may tend to realize monopoly and monopoly in its turn can lead to bring about rationalization.

As I will explain afterward, rationalization as well as monopoly is used as a means of profit-making. And, to realize this means other mechanisms have to be considered, and the most important of these mechanisms is the concentration of economic power. In short, the desire of profit-making brings about rationalization or monopoly, which in its turn takes advantage of economic concentration.

Before going into theoretical investigation, let us take a glance at

factual aspects in this respect. Many big concerns in modern industry operate their businesses under imperfect competition. This means that large-scale enterprises are provided with monopolistic power in some degree, and that the enlargement of business size, the concentration of economic power, is actually combined with the development of monopolization. Another fact is that although some corporations published consolidation plans purporting to the rationalization of their operations, these consolidations were often alleged to aim simply at ensuring the control of markets. The charges brought against the United Steel Corporation in the early period of this century can be said to be a good example of this allegation. So far actual cases seem to assert that the concentration of economic power is connected, to some extent, with the monopolization of market and, therefore, not to coincide with my view in this respect. Prior to proceeding with a theoretical analysis of this problem, we want to examine the meaning of rationalization. (It is hardly necessary to define monopoly. Here it means a control of markets.)

RATIONALIZATION

The meaning of rationalization appears to differ according to the economists of various countries. It is peculiar that the word, rationalization, is not so popularly used in the United States as in other countries. However Americans generally understand it to mean the mechanization of plants for lowering the cost of production. Keynes seems to denote the word in the same meaning, saying in his Treatise on Money that under the profit deflation, "when once the effort materially to reduce money-wages had been abandoned, there remained four possible ways out of the impasse." He proceeds further as follows: "The first and most attractive method was to increase the foreign balance, by decreasing money-costs of production as a result, not of reduced money-wages, but of increased efficiency. This was called 'Rationalisation' ⋯⋯. But improvements of this kind are a slow business; in order to help foreign trade the increase of efficiency relatively to money-wages must mature faster at home than abroad; ⋯⋯ ".[1] According to Hobson, "improved plant

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[1] Keynes, J. M., A Treatise on Money, vol. II, p. 186.

and mechanical power, accelerated labour, better organisation of business personnel, and better marketing arrangements are the main factors in rationalisation ".[1] It is worth while to note that Hobson takes into account as the factors of rationalization, not only the mechanization of plant, but also the organization of labor and sale devices. Mrs. Robinson seems to understand rationalization mainly as the concentration of output upon a few efficient firms or a single control of an industry. She remarks, among others, that " if a rationalization scheme is being put through, and the public are anxious to know whether the concentration of output upon a few firms is likely to raise prices, it will not help them much to be told that if the marginal cost curves are parallel to the demand curves for the products of the individual firms the price will remain unchanged ".[2]

Next we want to know what is meant by it in Germany, for this country, as explained later, is a pioneer of introducing rationalization in industries. The *Reichskuratorium für Wirtschaftlichkeit* (RKW), a nation-wide society for propagandizing rationalization, defines it as follows : " the catching-up and applying of all methods, which provide the technic and well-planned organization for the promotion of economy ".[3] Here rationalization involves every means for increasing the efficiency of trade and industry, and therefore relates to technical, selling, and financial as well as to personnel problems. Furthermore it is an all-round economic reorganization which embraces scientific management and industrial combination.

In other countries such as France and Soviet-Russia, the concept of rationalization is somewhat different from those mentioned above. In some case it is signified simply as scientific management. In others it places much emphasis upon the standardization of products.

So far we have reviewed the concepts or definitions of rationalization by economists in various countries. On the other hand, it might be of some use to investigate actual cases in some countries, where rationalization or arrangements concerned with it have been realized. That is to say, we want factually to know what rationalization has aimed at or has done in various fields of trade and industry. If the investigation is

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1 Hobson, J. A., Rationalisation and Unemployment, p. 62.
2 Robinson, J., The Economics of Imperfect Competition, p. 1.
3 Reichskuratorium für Wirtschaftlichkeit, Jahresbericht, 1930, p. 7.

successful, it would surely contribute to the forming of a more clear concept of rationalization.

Germany is the earliest of the countries where the rationalization movement has ever shown a most conspicuous feature. Let us not consider its early history. After the first world war she experienced great difficulty and confusion in her economic conditions. However facing the urgent needs for her reconstruction, she planned an all-round reorganization of her trade and industry. Rationalization belongs to this reorganization. We can find in its development three different aspects which consequently may demarcate the periods of the movement.

The first period was the time between the armistice and approximately the year 1924. The characteristic of rationalization in this period was industrial combination, particularly in the formation of *Konzern*, or a combine of firms. Among these combines the most famous and biggest is the *Stinnes Konzern* which embraced under its control iron and steel works, machine and shipbuilding corporations, collieries, trade companies, etc.. Furthermore it was allied with big banks which helped the growth of economic power of the *Konzern*. Some *Konzerne* were formed for the purpose of attaining monopoly. But many others aimed at increasing the efficiency of businesses concerned and consequently at lowering the cost of production. The second period runs from about 1920 to 1927, and is characterized by the standardization of products, and by the mechanization of plants and equipments. This mechanization was partly realized by the profits of firms concerned during an inflation period, and partly by the borrowing of foreign capital in the later time. Furthermore many plants introduced such an innovation in production technic as the assembly line which contributed to labor saving.[1] The third period began nearly at the time when the two sorts of rationalization mentioned above were effectuated to some extent, and continued until the *Nazis* controlled the national economy of Germany. The characteristic of rationalization in this period consisted of cost analysis and standardizing cost-calculation method.

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[1] *Cf.* Reichskuratorium für Wirtschaftlichkeit, Handbuch der Rationalisierung. This voluminous book treats mainly the mechanization, in particular, that associated with assembly line production.

As rationalization, whatever its form may be, purports anyhow the lowering of cost, it is quite natural that cost analysis was taken into consideration in due time. They paid attention particularly to such important cost items as taxes, wages, etc., in order to decrease the cost. Cost analysis tends to accompany the research of cost calculation method. Furthermore there was another cause for fostering the latter investigation. In pre-war Germany cartels developed in various fields of trade and industry, and contributed in some degree to the stabilization of the German economy. However as the war appeared to be against Germany, and particularly since the armistice, the price agreements of cartels actually lost their effects. On the other hand they made an effort to maintain their power by developing cost-calculation cartels—the cartels providing the method for cost-calculation. Although this agreement was not of such a nature as the original one (this usually fixed the price of product), it gave some suggestion as to general standard of price-fixing. Besides the study of the cost calculation method often accompanies an idea as to how actual cost can be controlled in accordance with an optimum or ideal cost.

After the second world war Germany renewed the rationalization movement. This time it put much emphasis upon the writing-off of depreciation and upon reserving a large amount of profit in capital account.

There remained still to prevail the Regulation for Dividend Payment which was enacted during the war. It gave to corporations a great incentive for writing off a large amount of depreciation of machines and equipments at each calculation period, and to use that amount of money for renewing of facilities or enlargement of plants. This may contribute to lowering the cost of production in later periods.

With regard to rationalization in Germany, we should note that both after the first world war and since the second one it was and has been promoted not simply for the interests of individual enterprise, but for the prosperity of all trade and industry. This feature might be of much importance for later analysis.

In England, already in the beginning of this century, industrial combination and integration of plants took place remarkably in order to

increase business efficiency and to lower cost.[1]   However the word rationalization was not generally used for this industrial feature.   Furthermore conservative feeling prevailed here so that rationalization movement in the sense of mechanization started rather late.   Entrepreneurs generally stuck to old equipment and engineers were not easily inclined to renovate plants by using new equipment.   But after the second world war the defects of the obsolescent way of production were recognized nationwide and an urgency necessitated introducing reorganization of industry for reconstruction of the country and in particular for increase of foreign trade.   The plan of rationalization consisted mainly in mechanization of plants, replacing of low-efficiency machines by new modern ones and also in the concentration of production in the most efficient establishment. This kind of rationalization was more or less promoted by American help such as the Marshall Plan and engineer's cooperation.

In the United States the mechanization of industry appeared to be a paramount factor for developing her industries, owing to the shortage of labor.   Therefore they can be said to have resorted to this sort of rationalization from the beginning of modern American capitalism.   However mechanization generally accompanies a large scale of operation, and therefore if marketing does not follow suit to that increased output, the industry concerned has to face overproduction.   For this reason rationalization in selling has begun to play an increasingly important role. Furthermore, as a result of enlarging the size of business, entrepreneurs must pay considerable attention to scientific management, personnel relations and top-management problems in order to keep operations effective.   However I do not know whether these items should be included in a rationalization project.

There is another important aspect in the rationalization movement of the United States.   American authorities concerned have not confined their activities to the sphere of trade and industry of their own country, but, beyond that, have given elaborate cooperation for realizing rationalization in such areas as Europe and South-East Asia.   It might have been partly due to the political consideration of the United States.   Whatever

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[1]   *Cf.* Macrosty, H. W., The Trust Movement in British Industry.

the true reason for this movement may be, the incidence indicates an international feature of rationalization development.

In Japan a rationalization department was set up in the Ministry of Commerce and Industry in the year 1931. It was authorized to recognize cartels in various fields and to control their price-fixing in accordance with the Law for Controlling Important Trade and Industry of 1931. Here rationalization was not far from cartelization. After the second world war the rationalization movement has shown a conspicuous feature, in particular mechanizing plants, renewing obsolescent machines, introducing improved process of production, etc. The most important event was the enactment of Law for Colliery Rationalization in 1955. The reason why this law was enacted is the need for lowering the cost of production. The cost and consequently the price of coal in Japan have been so high that it has had a very unfavourable effect on other industries. On the other hand, in spite of this disadvantage, most of coal mines have suffered a large amount of loss. Thereupon the law prescribes to help coal mines with the sinking of vertical shafts and the furnishing of up-to-date equipment. Besides it provides that the government will buy up old and inefficient collieries in order to concentrate output of coal by few firms.

So far we have described the general aspect of the rationalization trend in important countries. We can know from the above that rationalization involves many factors—mechanization of plants, introduction of new processes of production, well-organized marketing, scientific management, good arrangement of personnel relations and integration of industry. On the other hand rationalization relates not only to the individual establishment and enterprise, but to the whole trade and industry of the country. Furthermore it has international features. In this respect it might be worth while to cite RKW's assertion. It divided the scope of rationalization into several fields—technical, marketing, national, and international rationalization.[1]

If rationalization is of a varied nature and has different fields of application, we should adjust effects which one sort of rationalization

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[1] Reichskuratorium für Wirtschaftlichkeit, *ibid.*, p. 7. Professor v. Gottl-Ottlilienfeld (Vom Sinn der Rationalisierung) demarketed rationalization into technical, marketing and national. The former two kinds of rationalization, technical and marketing, seem to belong to the reorganization of an individual enterprise.

gives to the other.   For instance, it may not be advantageous to realize
technical rationalization independently of that in marketing.   Furthermore
individual rationalization may sometimes cause damage to the prosperity of
a nation.   Again rationalization in one country can affect unfavourably that
of another country.   In this respect it might be worth while to remember
again Keynes' remark that " Obviously the more rationalisation in this
sense, the better ; ············· ; in order to help foreign trade the increase
of efficiency relatively to money-wages must mature faster at home than
abroad ; foreign tariffs are a severe obstacle ······ ".[1]   It might probably
be impossible to make adjustment as to conflicts between rationalization
in one country and that of another.   Still it is helpful for us to keep in
mind the international aspects of rationalization.

<div align="right">(To be continued in next issue)</div>

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[1] Keynes, *ibid.*, P. 186.

JAPAN'S REPARATION AS A THIRD TYPE
OF CAPITAL TRANSFER

Shozo Sobajima

I

One of the pressing needs of the hour is Japan's reparations problem, and it is hoped that a satisfactory settlement of it will produce good effects upon the political and economic situations of our country. I wish to take this opportunity to give an outline of so-called transfer-mechanism and to classify the capital transfers, paying attention to some distinguishing traits we can observe in the case of our reparation payment.

II

General aspects and conditions of transfer mechanism are much the same in all instances of capital transfer (*i.e. einseitige Wertübertragungen*), whether it is of economic nature or of non-economic. Whether economic or not, the gist of the transfer problem lies in the realization of an additional flow of goods and services in the wake of capital outflow. Let us begin by giving a bird's-eye view of the general aspect of transfer mechanism.

The first phase of capital transfer consists, of course logically, of the " monetary transfer ", that is, the international shift of purchasing power for goods and services, from the capital exporting country (let us say country A) to the importing (country B). There are various ways in which monetary transfer is brought to effect and which can differ according to different types of capital movements and, moreover, according to different actual circumstances. In any case, the economic meaning of all monetary transfers ought to be found in the relative changes in effective demand between countries concerned, that is to say, the decrease in country A and the increase in country B. And such relative changes in effective demand constitute, at least on the level of logic, a distinctive

feature of international capital movements as opposed to the trade and traffic between nations.

The next and essential phase of the transfer mechanism, which constitutes the kernel of all transfer problems, consists of the realization of "real transfer" as a necessary complement of monetary transfer. Let us give an abridged explanation of the mechanism of real transfer, confining our description to the processes in country B.

As the amount of expenditure on internationally traded goods increases owing to an increase in the total purchasing power, B's balance of trade now tends to be adverse, and the possible excess of imports over exports may be reimbursed with a part of the imported capital. This means that real transfer is realized to that extent. If we assume that the full amount of capital import is predetermined to be spent for buying A's goods and services and that A has sufficient capacity to supply them, then the whole process of real transfer might be possible of realization without any difficulties. In such a case the transfer problem need not become an issue at all. By the way, this case reminds us of the simplification postulated by Gustav Cassel in order to demonstrate that his doctrine of purchasing power parity would not become null even if capital movements were under way.

In ordinary cases, however, in which the imported capital is more or less disbursed to purchase the home-market goods and to employ domestic laborers, the following state of things contributes toward the materialization of real transfer. An additional demand for the home-market goods serves as an incentive to expand the production of them and to increase the employment. Under the circumstances where the investment multiplier and the accelerator can interact with effect, increase in output and employment might be cumulative. But unless we take it for granted that the elasticities of supply are infinitely high, —— and it is not actual to assume that there are no bottlenecks in production,· —— both the prices of products and the rates of wage in B will, sooner or later, show an upward tendency. Increase in real and money income, that is consequent on the increase in output and employment, and that is usually attended with the rise in prices and wage-rates, leads to an

increase of B's import demand for A's products. And in proportion to the increase of imports, the extent of which depends mainly on the income and price elasticities of import demand, real transfer is realized.

Moreover, in so far as the transfer-effect of price changes is to be called to account, the following development comes to press forward the progress of real transfer. Although the prices tend to rise in general in country B, the upward tendency of prices of the internationally traded goods may more or less be detered under the influence of the reduction in import demand from country A, while such a hindrance does not attend on the price rise of the home-market goods. The result is the relatively higher price level of the latter class of goods, and this may give an impetus to industrial reconversion which, if circumstances require, is brought to effect through a wholesale diversion of productive factors from the export and import-competing industries to the production of domestic goods. And the larger the scale of such industrial reconversion is, the fairer the chances may be for creating the excess of B's imports over exports.

When the processes outlined above bring about the excess of imports in country B that is equal in value to the total amount of capital import, the transfer is said to have been completed from the national point of view. It is a matter of course that at the same time the processes in the opposite direction in country A, which we cannot touch on for want of space, should work in close cooperation to bring the real transfer to completion.

III

The foregoing outline of essential features of the transfer mechanism is enough, I think, to make clear that the gist of transfer problem consists in the realization of a favorable balance of trade in a broader sense in the wake of capital outflow and that, in consequence, the possibility of capital transfer is fundamentally dependent, on the one hand, upon the productive capacity of the paying country and, on the other hand, upon the higher elasticities of import demand in the receiving.

We may now proceed to classify all the capital transfers into two

large groups, according as they are attended with the "transfer-difficulties" or not.

It is natural that the transfer problem tends to become an issue when it is related to compulsory capital exports, such as war indemnity and the like. For the compulsory capital transfers that, from the very nature of things, are attended with the transfer-difficulties may be destructive not only to the internal economy of the paying country but also to the international economy as well, and they might result in failure in the worst case. This is the reason why the transfer problem is made an object of brisk discussion when it involves the transfer-difficulties. Here we are to recollect Keynes' following view, expressed in connection with the German reparations problem after the World War I : " My own view is that at a given time the economic structure of a country, in relation to the economic structures of its neighbours, permits of a certain 'natural' level of exports, and that arbitrarily to effect a material alteration of this level by deliberate devices is extremely difficult. Historically, the volume of foreign investment has tended, I think, to adjust itself —— at least to a certain extent —— to the balance of trade, rather than the other way round, the former being the sensitive and the latter the insensitive factor. In the case of German Reparations, on the other hand, we are trying to fix the volume of foreign remittance and compel the balance of trade to adjust itself thereto."

I should like to interpret Keynes' view, that might appear to lack in universal validity, as follows. More generally speaking, it is perhaps much more pertinent to look at the matter in this way : whereas we can admit the causal relation, " balance of trade ⟶ capital export ", from the standpoint of short period income analysis, we must acknowledge the opposite causality, " capital export ⟶ balance of trade ", from the standpoint of economic development over a long period of time.

In accordance with the above consideration, we may, before making allusion to our reparations problem of the day, classify the following two large groups of capital transfer.

Capital exports in which the transfer-difficulties or transfer-losses

are minimized, or rather, in which the "transfer-gains" can be obtained, are the foreign investments voluntarily prompted from the profit motives of private investors. These investments do not necessarily bring unsatisfactory results, such as unfavorable changes of so-called barter terms of trade, to the capital-exporting country. Instead, the following chain of reasoning induces us to expect that rather the transfer-gains ought to accrue to the country from its capital exports. Higher level of national productivity (=higher average level of real income) $\longrightarrow$ higher capacity and higher propensity to save (=relative decrease in consumptive expenditure and the relative and absolute increase in capital accumulation) $\longrightarrow$ decreasing marginal efficiency of investment (=shrinking of the investment opportunities in the domestic market) $\longrightarrow$ shortage of effective demand at large (=excess productive capacity together with excess products) $\longrightarrow$ foreign investments as an outlet of over-savings (=capital exports that are serviceable for exporting the excess products and, at the same time, for securing the higher rates of profit and/or interest). Here one might see the reverse of the so-called "vicious circle of the poverty" that is likely to threaten underdeveloped countries.

Capital exports that have the character of "aid" or "gift" and that may be actuated by other motives than profit-earning in terms of money, come in the same category as private investments in that they need not bring with them any transfer-difficulties. So-called "tied loans" (*Kapital-Waren-Bindung*) might effectuate real transfers of capital in defiance of the economic principle of comparative costs and thus might come injury both to the capital-importing country and the multilateral world trade, yet they are not attended with any transfer-losses in the proper sense of the word.

Thus far about the one group of transfer. On the other hand, capital exports such as repayment of foreign loans or debt services, in their nature, are apt to bring with them transfer-difficulties, more or less. If a debtor country fails to make effective use of foreign loans, that is, if it does not succeed in raising the general level of industrial productivity and thus in producing the necessary excess of exports over imports, it might fall upon difficulties. Or, even if the country in question succeeded

in lowering the real cost in its export industry in broader sense, too lower elasticities of foreign demand for its exportable goods might, nevertheless, put the country in a difficult situation. To be a little more concrete, the repaying country might be compelled to cut down the general level of wages and prices by deflationary measures and also to resort to import restrictions. This implies that the required transfer, i. e. the necessary excess of exports over imports is possible of realization only at the cost of enduring worsening of the terms of trade and, with it, of cutting down the standard of living. And these transfer-difficulties, contrary to the "prearranged harmony" doctrine, so to speak, of the classical school of economics, are more likely to visit underdeveloped countries trying to achieve economic development with the help of foreign loans.

It goes without saying that the transfer-difficulties of the nature suggested above may be made severer in the case of compulsory capital exports, such as reparation payments and the like. To press a country for payment beyond its capacity to pay could, in the worst case, lead to an unexpected result, the transfer-moratorium, as was the case with the German reparations payment.

IV

Now, we are to comment on some distinguishing traits we can observe in the case of our reparation payment. It may be said beforehand that the reparation-transfer of our country, with the following traits, may well, as a third type of capital transfer, be situated between the two large groups classified above.

As modern wars are conducted on a larger and larger scale, costing very heavily in human life and wealth, it is in all probability impossible to make reparation for the actual war damage only, exclusive all the exemplary damages. Moreover, an unreasonable exaction of reparations may hinder the reconstruction of the postwar world economy. The past experience of the failure of German reparations payment gives the actual proofs of these considerations. It is natural and reasonable, therefore, that in the case of reparations of Japan people are making effective use

of the past bitter experience. To put it concretely, we are required to make reparation for the war damages to the best of our ability, but not to the full extent of them.

It is agreed in principle that, of the possible ways of making reparation, —— that is, reparations in cash, in kind, and in services, —— the greatest importance is to be placed on service reparation in our case. And if we be demanded to make reparation in kind, as are demanded partly as a matter of fact, it is understood as a general rule that the necessary raw materials are to be supplied by the receiving countries. So-called " services " or industrial processes may include not only the supply of work and labor of various kinds and the construction of various industrial equipments and facilities, but also technical guidance in the methods of production and business management, assistance in educational and sanitary arrangements and so forth. With such a variety of services, we may well rely upon the peaceful and satisfactory settlement of the negotiations over our reparations problem. That the negotiations go on in our favor means, at the same time, that we are able to tide over the possible difficulties in the balance of international payments and, consequently, in the foreign exchange position of our country.

A very significant consideration in this connection is that an idea of " economic cooperation " is interwoven into the principles of our reparations payment. The idea is to the point, for the very fact that the receiving countries lag more or less behind our country in economic development may lay an objective foundation for materializing the high spirit of economic and, furthermore, political cooperation. Even if we were asked to make reparations in kind or products, this, owing to the existent disparity of economic development, would not exert a bad influence upon industries of the same kind in the receiving countries. Contrary to the experience in the German case, in which German industrial manufactures as reparation objects proved a menace to the industries of other countries, we may expect our reparations in kind will be able to promote the mutual aid in economic development. In other words, we may hope with reason that an expansion of normal trade and thence an increase in real income will become a reality among the countries concerned.

Of course, we can not reach prosperity without serious efforts, patience and courage on our side.

At the same time, we are to form an all-out plan,——anticipating, among other things, the desirable rate of income growth, the necessary capital coefficient, the rates of increase in investment, consumption, and import,——lest we should fail in maintaining the domestic and international equilibrium.   And the measures to be taken must be framed to create an economic and political climate in which all elements of our community can play their full part.

ÜBER DAS NEUE WERK DER FINANZ-
WISSENSCHAFT VON PROF. AMONN

KAZUO KINOSHITA

ALFRED AMONN, *GRUNDSÄTZE DER FINANZWISSENSCHAFT.*
TEIL I, II. (BERN: A. FRANCKE. 1947, 1953. SS. 240, 231.)

Alfred Amonn, der berühmte Forscher der theoretischen National-
ökonomie, der einst als Dozent an der früheren Kaiserlichen Universität
Tokyo der Entwicklung der Nationalökonomie Japans große Dienste
geleistet hat, ist jetzt in der Schweiz und als Professor an der Universität
Bern tätig.

Gerade nach dem zweiten Weltkrieg veröffentlichte er „ Leitfaden
zum Studium der Nationalökonomie, 1945 ", „ Simonde de Sismondi, als
Nationalökonom, Bd. I. u. II, 1945 ", dann den Ersten Teil der „ Grundsätze
der Finanzwissenschaft ". Im Jahr 1948 veröffentlichte er „ Grundzüge
der theoretischen Nationalökonomie ", „ Bundesstaatliche Finanzordnung.
Kritische und positive Bemerkungen zu den Fragen der Bundesfinanzre-
form ", und im Jahr 1953 den Zweiten Teil der „ Grundsätze der
Finanzwissenschaft ". Hiermit ist das Werk, „ Grundsätze der Finanzwis-
senschaft " von Prof. Amonn, das das einzige originaldeutsches Lehrbuch
nach dem Kriege ist, ganz vollendet worden.

In dem Ersten (allgemeinen) Teil dieses Buchs stellt der Verfasser
zuerst ＜Gegenstand und Aufgabe der Finanzwissenschaft＞ dar, dann
wendet etwa fünfzig Seiten auf die historische Beschreibung von
＜Entstehung und Entwicklung der modernen Finanzwirtschaft und
Finanzwissenschaft＞ an. Der Inhalt dieses Abschnitts, von dem großen
Gelehrten geschrieben, ist sehr interessant, aber die Finanzgedanken und
ihre lehrengeschichtliche Entwicklung sind nicht ganz systematisch
dargestellt, besonders ist ihre Entwicklung seit dem Jahr 1930 vernach-
lässigt.

Der Hauptinhalt des Ersten Teils, der der oben erwähnten Einleitung
folgt, ist in drei Hauptgruppen geteilt: ＜Finanzordnung und Finanzge-

barung>, <Ausgaben und Einnahmen> und <allgemeine Theorie der
Besteuerung>. Nun will ich der Reihe nach überblicken. Der Verfasser
erklärt zuerst die Organisation des Finanzdienstes und dessen Funktionen
in den modernen Staaten, dann erörtert ausführlich das Budget. Er
analysiert ferner, die Ausgaben der öffentlichen Gemeinwesen betreffend,
die grundsätzlichen Verhältnisse zwischen Bedürfnissen, Bedarf und
Ausgaben, und ihre Entwicklung. Zugleich macht er uns besonders auch
mit der Auffassung G. Colms über die Arten von Bedarf und Ausgaben
bekannt. In bezug auf die allgemeinen Grundsätze der Ausgaben-
gestaltung behauptet er, daß der Grenznutzen, der auf den öffentlichen
Leistungen beruht, den Grenzkosten, die als das Opfer der Beitragsleis-
tenden-nach dem Verfasser sei die Besteuerung das Opfer an Nutzen-
gelten, gleichen soll. Er erklärt fortlaufend die bisherigen Grundsätze
der ordentlichen und außerordentlichen Ausgaben und deren Deckung,
und legt dann in bezug auf die volkswirtschaftliche Wirkung der öffen-
tlichen Ausgaben hauptsächlich die Produktivität der Ausgaben dar.
Seiner Meinung nach sind die im volkswirtschaftlichen Sinne verstandenen
öffentlichen Ausgaben produktiv, insofern sie bei der Produktion
wirtschaftlicher Güter positiv produktionsfördernd oder produktivitäts-
steigernd wirken.

Dann stellt er in bezug auf die Einnahmen der öffentlichen Gemein-
wesen die Arten der öffentlichen Einnahmen und deren historische
Entwicklung in Umrissen dar, und dann erklärt den Inhalt der privatwirt-
schaftlichen Einnahmen und der Gebühren. Die übrigen etwa sechzig
Seiten des Ersten Teils sind auf die allgemeine Erklärung der Steuern
angewandt. Der Verfasser begreift, daß die Steuern nichts als die
Zwangsabgaben sind, die gemäß der Zugehörigkeit der dem öffentlichen
Gemeinwesen angehörigen Privatwirtschaftssubjekten erhoben werden,
und daß sich das Wesen der Steuern in Zwangscharakter und Einseit-
lichkeit findet. Überdies stellt er dar, wie sich aus solchem Wesen der
Steuern die gegenwärtige, ordentliche, regelmäßige Zwangseinnahme
entwickelt hat, und legt jede Auffassungen von dem Grund der Steuer
miteinander vergleichend aus. Prof. Amonn nach soll sich die Begründung
der Steuer in deren wirtschaftlicher Zweckmäßigkeit finden. In diesem

Sinne bestimmt er, daß die Steuer die zweckmäßigste Einnahmeform eines öffentlichen Gemeinwesens unter den Verhältnissen der individualistischen, verkehrswirtschaftlichen Organisation der Volkswirtschaft ist. So behauptet er ferner, daß die Hauptzwecke der Besteuerung in den Einnahmen des Gemeinwesens bestehen, daß man auf den sozialpolitischen Zweck der Besteuerung nebst dem ethischen, gesundheitlichen und wirtschaftlichen Zweck großen Wert legen soll, und der Konsequenz dieser Zwecke folgen muß. Dann betrachtet er die Steuerwirkungen und die Grundsätze der Besteuerung von drei Seiten her, d. h. von finanzwirtschaftlichen, volkswirtschaftlichen und privatwirtschaftlichen, und behandelt allgemein die Abwälzung und die Überwälzung. Ferner untersucht er, welche Verteilung der Steuerlast wirtschaftlich zweckmässig ist. In bezug auf den Begriff der wirtschaftlichen Wohlfahrt handelt er dann von dem Prinzip des gleichen Opfers und von dem der Leistungsfähigkeit in den bisherigen Steuertheorien. Darauf erklärt er die Entwicklung des Steuersystems und die Entwicklung von der indirekten zur direkten Besteuerung. Nach dem Verfasser soll die Besteuerungsfähigkeit, wie gewöhnlich behauptet, natürlich von der Größe des Volkseinkommens beachtet sein, und dazu noch sind die Art der Besteuerung und die Art und Richtung der Verwendung des Steuerertrags zugleich in Betracht zu ziehen, und die feststehende einfache Größe von der steuerlichen Leistungsfähigkeit ist schwer zu bestimmen. So, wie oben erwähnt, ist die Darstellung des Verfassers sehr abstrakt, und seine dargestellten Theorien neigen zum Methodologischen. Überdies sind hier die hergebrachten, in der orthodoxen Finanzwissenschaft angenommenen Ausdrücke Darstellungsformen und Konstruktion ganz hindurch fortgebraucht.

In dem Zweiten (besonderen) Teil dieses Buchs kommt zuerst die Darstellung von der besonderen Steuerlehre, d. h. die Erklärung über Ertrags-, Einkommens-, Vermögens-, Aufwand- und Verbrauchs- und Verkehrssteuern. Jede Erklärung darüber besteht aus Begriff, Wesen und Arten, Entwicklung und Gestaltung, Überwälzung und Anfall, und Beurteilung. Und die Darstellung von jeden Steuerarten sind genau und gründlich, der Verfasser berührt aber zu meinem Bedauern die wirtschafts-

theoretische Analyse und den politischen Sinn dieser Steuerarten fast gar
nicht. Auch die Erklärung über die Überwälzung ist hier nicht mehr
als die Teilgleichgewichtstheorie, die sich um den Zusammenhang mit
Elastizität der Nachfrage und des Angebots dreht. Über diesen Punkt
wünsche ich herzlich dem Verfasser, moderne wissenschaftliche Maßregeln
auf seine Volkswohlstandslehre hin treffen zu versuchen. Dann gehört
der Gegensatz zwischen Subjekt- und Objektsteuern zu den wichtigen
Gesichtspunkten des Verfassers in der Steueranalyse. Wie soll man aber
die Beziehung dieses Gesichtspunktes zu der sogenannten Doppelbesteuer-
ung verstehen ? Ich habe schon die Auffassung des Verfassers über das
Wesen und den Grund der Steuer erwähnt, aber nur die Einkommenssteuer
ist es, für die sein Grundsatz, Besteuerung nach der Leistungsfähigkeit,
typisch gilt. Dagegen sind besonders die Umsatzsteuern als eine
Steuerart anzusehen, auf die sich der oben genannte Grundsatz gar nicht
anwenden läßt. Zeigt uns die Tatsache, daß viele Staaten, abgesehen
davon, spezielle Finanzpolitik zu bezwecken, die Umsatzsteuern als die
beständigen Steuern aufnehmen, daß diejenigen, wie der Verfasser
behauptet, als *ultima ratio* der Finanzwirtschaft benutzt sind ? Wenn
die sogenannte ,, Besteuerung nach der Leistungsfähigkeit auch als ein
Prinzip der Erhebung von bestimmten Steuern anerkannt wird, es ist mir
doch die Frage, ob sie denn als Auswahlprinzip der Steuerarten oder als
konstitutives Prinzip des Steuersystems gültig sein kann.

Den öffentlichen Kredit erklärt der Verfasser aus dem Unterschied
zwischen dessen Besonderheiten und dem privaten Kredit, dann weist er
auf den politischen Charakter vom Verhältnis der Schuldner mit den
Gläubigern und vor der geringen politischen Zuverlässigkeit der Schuldner
oder der Manipulation der Währung hin. In der folgenden Darstellung
sind die formalen Probleme von der Administration der öffentlichen
Anleihen, d. h. Begebung, Konsolidation und Konversion, und Tilgungs-
problem hauptsächlich behandelt, so daß die wichtigen Probleme, die
Verzinsung, die geldwirtschaftliche Wirkung der öffentlichen Anleihen
etc. unbeachtet gelassen wird. Zuletzt behandelt der Verfasser, den
Finanzausgleich zwischen miteinander verbundenen Gemeinwesen betref-
fend, die zweckmäßige Teilung der Verpflichtungen und Befugnisse, die

Vereinheitlichung der Finanzwirtschaft und die Verteilung der Steuer-
quellen und Erträge unter vielen Gemeinwesen, und legt den Sinn der
Subventionen, Dotationen, Zuschüssen und Entschädigungen um des
Lastenausgleichs willen aus.

Dieses Buch ist, wie oben gesagt, ein originaldeutsches Lehrbuch der
Finanzwissenschaft, das seit dem Erscheinen des Buchs von W. Röpke
als das ersten Ranges für die Studierenden der Finanzwissenschaft zu
erachten ist. Ich bin nicht immer dagegen, daß sich das Buch zuerst,
wie es einem Lehrbuch geziemt, in den traditionellen Rahmen hält, und
daß Finanzsoziologie und Steuerpsychologie als über den Rahmen eines
Lehrbuchs angesehen und davon weggelassen werden. Aber die systema-
tische Theorie, die der Verfasser aufzustellen versucht, muß heute wohl
eine nationalökonomische oder volkswirtschaftliche Theorie der Finanz-
wissenschaft sein. Darum ist das „ reine “ Finanzwesen im traditionellen
Sinne hier relativ als von geringer Bedeutung zu betrachten. Sind doch
z. B. die Steuerprinzip und die orthodoxe Finanztheorie heute praktisch
von geringer Nützlichkeit? Ist die Analysierung von den wirklichen
wirtschaftlichen Wirkungen der finanziellen Tätigkeit für die Gegenwart
nicht wichtiger als die Erörterung der verschiedenen Prinzipien?

Diese Fragen ergeben sich aus meinem Standpunkte, von dem aus die
Finanzwissenschaft dem Wesen nach die Politik sei.

OVER-POPULATION AND INTER-
NATIONAL TRADE

TARO WATANABE

I

The concept of " over-population " has traditionally been thought of
in connection with the capability of a nation to sustain her population.
And national capability is regarded primarily to be determined by the size
of national territory, or more accurately speaking, by the acreage of
arable land.   At a given level of living, the larger a national territory
is, the greater population is to be sustained, because the territorial area
presents a limit to the maintenance of population in the sense that
other things being the same more men can be put, before the returns
start to decrease, on the land when it is of larger scale than otherwise.
Such reasoning opens up an easy access to the idea of optimum population.
It is nothing else but an application of the law of returns to population
theory.[1] According to this, the scale of population that has security of see-
ing maximum returns per worker, with the size of land given, is considered
optimum and those parts of the population beyond the optimum range
who have to work under the forces of the law of diminishing returns
are regarded as over-population.

Above is certainly a clear-cut interpretation of " over-population ", but
it is the fundamental drawback that no positive importance is attached to
the labor productivity in their reasoning.   Even if the size of the land
remains the same, more population is sure to be maintained on the same
level of living, if productivity is higher.   Therefore the scale of optimum
population (or over-population) should vary according to the change in
productivity.   This is well illustrated by the fact that the great Britain
nowadays enjoys a definitely higher standard of living compared with
150 years ago, though her present population has expanded four times

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[1] Cf. Cannan, E., *Wealth*, 2nd edition, London, 1920, pp. 67-71.

as much since early 19th century. This is entirely attributable to the
sharp increase in the productivity that went ahead of the population
increase. To take another example, one cannot see clear why the popula-
tion problem is far less serious in Holland than in India though the density
of inhabitants is as high as 290 persons per square kilometer in the former
as against 110 in the latter, without taking into account the difference in
the productivities between them.

Now, the productivity of labor is generally considered to be dependent
on the level of technique as well as on the quantity of capital per worker
which are far flexible in comparison with the available land of a country.
Speaking more concretely, as is well understood by cases of land develop-
ment such as of land reclamation, irrigation, highways, rail-roads, etc.,
even the supply of land itself is to a certain extent influenced by the
quantity of invested capital. If this is the case, the method of directly
regarding the capital as the independent variable and treating the optimum
or over-population as the dependent variable seems to be more logical
than the conventional method of figuring out the optimum population
corresponding to a given land into which the change in the quantity of
capital is almost neglectedly introduced.

There is another reason why the land should recede in importance.
When a national economy is isolated or transport facilities are still
undeveloped, the capacity of sustaining population primarily depends on
the volume of domestic agricultural production. But agricultural produc-
is under the tendency of rapidly diminishing returns, owing to the limited
supply of land as well as to other natural conditions, and the improvement
in productivity therein is not likely to be so rapid as in industry.
Therefore rapid population expansion would naturally bring about poverty
and famine, and what Malthus watched with dreaded eyes was the
possible outcome of such an unbalance between expanding population and
productivity to be left behind. His pessimistic prediction was entirely
disproved by what thenceforth took place in the English economy, where
the expansion of foreign trade, as is well known, took a significant part.
By exchanging her surplus industrial products in favorable terms with
agricultural products abroad, England has easily been able to sustain her

ever expanding population. Thus, in a country where foreign trade occupies a great proportion in its national economy, agricultural production at home can no longer be a dominant factor in a strict sence that sustains her population. Instead the productivities of all the sectors of an economy including that of agriculture must be considered as the factors which determine the capacity of maintaining her population. Therefore, the size of the national territory would have less to do with the problem.

II

With the quality and quantity of capital equipment of a country given, the amount of labor necessary to run it in its normal capacity is determined by the technical level available in the country. It is called her optimum population. The excess of the actual labor force over the optimum population is the relative over-population (hereinafter referred to simply as over-population) or industrial reserve army, in Marx's terminology.[2]

As is clear from what is mentioned above, the size of overpopulation depends not only upon the stock of capital but on its quality, while the technique for the production of a certain goods is not necessarily only one. Then the stock of capital to be combined with a given quantity of labor varies according to what sort of technique is to be adopted. When a techinique requires more capital to be combined with a given quantity of labor than the other, the former is called of higher mechanization.[3] The labor productivity with the technique of higher mechanization is naturally greater than that with the technique of lower mechanization, otherwise the combination of a given quantity of labor with more capital would altogether be out of the economic question. The question which of economically feasible techniques, should actually be chosen by an enterpreneur is solved by considering which of them will secure the maximum rate of profit at a given wage rate.

If the wage rate measured in terms of product is indicated by w, while

2 Marx, *Das Kapital*, Bd. I, Kap. 23; Joan Robinson, *The Rate of Interest and Other Essays*, London, 1952, pp. 110–111, footnote.

3 Joan Robinson, "The Production Function and the Theory of Capital", *Review of Economic Studies*, Vol. XXI (2), No. 55, p. 91.

the number of laborers by N, and the quantity of capital to be combined therewith by K, and output by O, the profit rate π can be expressed by:

(1) $$\pi = \frac{O - wN}{K},$$

For simplification's sake, raw materials are assumed to be produced within the same organization. Then, if we indicate $K/N = \alpha$, $O/N = \beta$, the enterpreneur who tries to make the profit rate to be maximum with a given wage rate will choose the combination of capital and labor that satisfies the following condition:

(2) $$\frac{d\beta}{d\alpha} = \frac{O - wN}{K} = \pi.$$

Suppose some over-population takes place as the result of adopting a certain technique according to this principle. Then, in case either the trade union is in a strong position or the wage has already fallen to the level of subsistence minimum, no further down-fall of the wage rate may take place. In such a case our story stops. However, the unemployed might feel that the pain that comes from lower wage is less unbearable than that of losing job. As the result if the wage comes to be lowered, the type of technique to be chosen by the enterpreneur might change. Mentioning the conclusion first, if the wage is lowered, the technique of less mechanization comes to replace that then adopted. Such a serial change is commonly called "the Ricardo Effect".[4]

If (2) is differenciated by w,

(3) $$\frac{d\alpha}{dw} = \frac{1}{k} \Big/ \frac{d^2\beta}{d\alpha^2}$$

is obtained. If the law of diminishing returns is assumed to hold with regard to the productivity increase of employed workers brought about by the increase of invested capital per head, $\frac{d^2\beta}{d\alpha^2} < 0$. Then follows the formula below:

$$\frac{d\alpha}{dw} > 0.$$

4   Joan Robinson, *op. cit.*, p. 96.

This indicates that when the wage rate is lowered, the capital per employed worker must be reduced in a new equilibrium.

There may still be over-population even in the new equilibrium. If there takes place no change in the wage rate, the equilibrium will remain as it is, carrying over-population with it. Whereas if a change may take place in the wage rate, another new equilibrium with or without over-population will be established at the lowered wage rate.

At any rate we can make the following inferences by comparing country A where relatively larger population is inhabited as against capital with country B that has relatively smaller population. The wage rate and technique that enable to see no over-population in country B will cause over-population in country A. If the workers in A stick to the same wage rate as in B, which leads to the adoption of the same technique as that of B, the productivity per employed worker will be maintained at the same level as that of B, but since A is holding unemployment, the productivity per laborer must naturally be lowered. On the other hand, should the wage rate be reduced in A, the technique with less mechanisation would be adopted and the employment under the given stock of capital be increased, with the consequence that the over-population pressure would be lessened, but the productivity of the employed would inevitably fall. In short, A will be obliged either to undergo heavier over-population pressure than B, or to endure lower productivity.

III

The handicaps that an " over-populated " country has to suffer are fundamentally derived from the fact that her population is relatively large as against her stocks of capital. Therefore, in order to overcome the hardships, the population control and the capital accumulation are the prerequisites, both of which involve a lot of difficulties in an " over-populated " country. There are two ways for controlling population increases ; one is birth control and the other is the emigration to overseas. Among the several factors that determine natural increase in population, the death rate is on the downward trend in any country owing to the medical progress and improvement of public welfare facilities. If the

living standard is elevated, the death rate may further be lowered. Accordingly, the control of population increase is all the more to be dependent on birth control. Nevertheless, the fact is that the birth rates of Japan, India and other "over-populated" countries are very high. It is the more necessary that those nations should be powerfully awakened to the value of better living and energetic campaigns should be carried out for birth control in parallel.

Where free movement is allowed, labor has the tendency to move from a lower-wage area to a higher-wage area, in other words, from an over-populated country to an under-populated one.[5] However, realities are that the international movement of labor is, firstly, hampered, to a great extent, by differences in climate, custom, habit, language, religion and so forth. Even in the case of the Great Britain that had sent a great number of emigrants to the U. S. A., the number of her emigrants occupied in average only 8% of her natural population increase during 1920s. Speaking of Japan, out of her prewar natural population increase of over one million per year, only 20,000 in average emigrated to Latin America. Secondly, the poor people who are most eager to emigrate are often incapable of raising the fund necessary for emigration, and on the other hand, the laborers of the recipient country tend to go against the imigrants because of the threat of cheap labor. Thirdly, there is a growing trend that the recipient country establishes legal measures for severer qualifications as to the race, financial and technical capabilities of imigrants for the purpose of maintaining her political, cultural and racial unification.[6] Owing to such natural and social barriers, it seems that no hopes can be pinned on emigration as a remedial solution of over-population problem.

Thus, to solve the problem of over-population we have to look to capital accumulation. Unfortunately, however, poverty undergoes vicious circle.[7] The situation that the capital accumulation itself is hampered by

    [5] Ohlin, Bertil, *Interregional and International Trade*, Harvard University Press, Cambridge, Mass., 1933, pp. 329–332.

    [6] League of Nations, *Industrialization and Foreign Trade*, Geneva, 1945, p. 34.

    [7] Nurkse, Ragnar, *Problems of Capital Formation in Underdeveloped Countries*, Oxford

the poverty due to over-population, is not a mere theoretical possibility, but constitutes the greatest bottleneck actually faced by an over-populated country. In an over-populated country low productivity brings about low real income and the low level of real income allows little saving. In backward countries there are other factors reducing the propensity to save. As Nurkse pointed out, if the demonstration effect should work internationally, it would raise her propensity to consume more than it does not.[8] And in a country where the real purchasing power is scanty and her economy is rather stationary and further no rapid development can be expected in her future, the enterpreneurs can see no incentive for investment and thus the capital formation within the country will have to be extremely limited due to the barriers existent on both demand for and supply of capital. Even if capital formation be made, it might be sure to make the relative shortage of capital even more serious and could not help mitigate over-population presure, unless the rate of capital formatin exceeds that of population increcase. This is something beyond an apprehension of backward countries to which the Ricardo's law that economic development accompanies population

University Press, New York, 1953, pp. 4-5.

Cf. *Industrialization and Foreign Trade*, p. 36.

8 Nurkse, *op. cit.*, Chapter III. The reasoning Nurkse tried in applying the demonstration effect to the international aspect is nothing but a direct translation of what Duesenberry tried in its application to domestic economy. When Duesenberry said that the existence of the discrepancy in real income level and mode of consumption accelerates the propensity to consume of lower-income group, he correctly grasped one aspect of consumption psychology of individuals. When Nurkse says that the discrepancy in real income and consumption levels existent between an advanced country and a backward one likewise accelerates the propensity to consume of the latter, he is probably thinking of the average levels of the both, but actually he has made no reference to the reason why the difference in the average levels has such a effect upon the psychology of each consumer as to promote consumption. It seems impossible to have Nurkse's reasoning account for the psychology of the princes and riches of the backward countries to pursue, in spite of the millions of wealth in their possession, Americanized mode of living and to indulge themselves in French tastes. The writer thinks it adequate to consider that the propensity to import of the backward country is accelerated by a composite action of the inferiority complex imposed on the backward nation due to the generally acknowledged superior evaluation of the culture of western countries and of the superiority complex of the higher-income group to the lower-income group within the backward country. In other words, the writer regards that the demonstration effect is not only dependent on the inferiority complex referred to by Duesenberry, but also on the superiority complex counted by Veblen. Cf. Duesenberry, J. S., *Income, Saving, and the Theory of Consumer Behavior*, Harvard University Press, Cambridge, Mass., 1952, pp. 25-32.

increase seems to be applicable.[9]

If capital formation is far from what is necessary to relieve over-population in a country, the last and only resort must be the inflow of foreign capital. However, there is, in general, no reason to believe that a country where saving is least expected can hope for so smooth and large inflow of foreign capital as she requires. We aforestated that investment in over-populated countries tends to be frustrated by the limitation of the market. Since foreign capital pursues profits like domestic capital, the same obstacle would exist before foreign capital as does before domestic capital.

According to a report prepared by the United Nations, if the under-developed countries were to elevate their per-capita income by 2% every year, the capital accumulation amounting to 19 billion dollars is annually needed. As the savings that could be available in those countries is, for instance in 1949, only 5 billion dollars, 14 billion dollars must be borrowed from the advanced countries. However, the fact is that postwar inflow of foreign capital into those under-developed countries is annually not more than 1.5 billion dollars, including grants and loans.[10] This exactly points out how void it is to expect for foreign capital.

In short, if it is difficult for over-populated countries either to check their population increase or to accumulate capital by themselves, it is no exaggeration to conclude that the over-populated countries have to continue to be chained to poverty and social stagnation. This by no means implies that the over-populated countries are destined to misfortune, but I mean that the over-populated countries are unable to break up the fetters of poverty and social stagnation without a powerful participation by their govern-ments. It is sufficient to look back upon the surprising economic develop-ment achieved by Japan since Meiji revolution where foreign capital played no substantial role. Almost no aid from foreign capital was then extended at an early stage when she needed it most, while her emigrants who went abroad were almost negligible, despite the rapid growth of her

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[9] United Nations, *Measures for the Economic Development of Under-Developed Countries*, New York, 1951, p. 45.

[10] United Nations, *Measures for the Economic Development of Under-Developed Countries*, pp. 75–80.

population.   The driving force that pushed forward the said development of Japan's economy under such unfavorable conditions was the powerful policy of her government toward protection and upbringing of industry, and the core of the policy was the accumulation of capital through forced saving (taxation and credit creation) as well as through the expansion of foreign trade smoothly to accomplish the former.

There is claimour for expanding foreign trade as a first and last remedy to over-population and poverty, but it is not yet developed to a theory.[11]   If our basic thinking that over-population is after all the problem relative to capital is correct, then the relation between foreign trade and over-population must naturally be considered through the problem of capital accumulation.[12]   An expansion of foreign trade without any thought given to capital accumulation might often be an effective contra-cyclical policy, but could not be of any help for the solution of over-population problem.   This is the basic thought underlying our reasoning hereinafter stated.

<div align="center">IV</div>

Increase in exports serves domestic economy in two ways; one in promoting the effective demand for domestic products and the other in offering the means of international payments required for purchasing foreign products.   Let us discuss the latter first.   In case it is impossible to get loans from foreign countries, the amount of imports is restricted by the available quantity of the means of international payments possessed by the country.   The increase in imports is made possible, only when the quantity of such means is increased.   Through increases in imports of consumers goods the national living standard will be elevated.   This benefit may be keenly felt particularly by an over-populated country whose agricultural production is insufficient to cater for even the minimum requirements of her people, due to drastically diminishing returns from

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11   For example; Clark, Colin, " Population Growth and Living Standards," *International Labour Review*, August 1953, p. 117.

12   A brief remark in this respect is found in: Spengler, J. J., " The Population Obstacle to Economic Betterment," *American Economic Review*, *Papers and Proceedings*, May 1951, p. 350.

her narrow land and to a large demand corresponding to her large popula-
tion. From a long-range view, however, the benefit of importing more
capital goods may be important than importing consumers goods. Even
though an over-populated country, which is unable to produce necessary
machines and materials at home and has to depend on foreign countries
for their supplies, might success in providing considerable sum of money
either voluntarily or forcibly toward accumulation of capital, there is no
way open for her to construct equipment and expand production without
sufficient means of international payments available.

When the effective demand for domestic products is promoted though
increases in exports, it will work to elevate the level of domestic real
income. When there exists the so-called Keynesian-type unemployment [3]
due to depression, export expansion increases output, accompanying
increased employment, while where the productive equipment is operated
at nomal capacity with industrial reserve army alone available, the
level of real income will be elevated through more favorable terms of
trade which is made possible by the limited elasticity of supply. Whether
it comes through this way or that, the rise in real income level will
help increase savings in so far as there appears no offsetting fall in the
propensity to save. Long-range observation tells us that the propensity
to save is stable in the U. S. A.. If the same tendency could be
applied to or at least the propensity to save would not descend in the
over-populated country, the increase in exports would surely be an im-
portant driving force toward capital accumulation in the long run.
However, to what extent a temporary increase in exports can help
increase capital accumulation is still in question. In this connection we
should give our thought as to if the favorable turns in the exports of
Japan and of many of the primary countries after the outbreak of Korean
War could in fact serve for the accumulation of capital in those
countries. It seems that the increase in real income as a result of the
export increase did not go any farther than having simply released the
pent-up desire for consumption.

Above is a reasoning about the effect of export increase upon savings.

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[3] Robinson, J., *The Rate of Interest*, pp. 110–111, footnote.

Generally speaking, the significance of foreign trade in connection with capital formation is more likely to be found in an investment incentive, or something that serves to expand the market rather than in a supplier of savings.   As we stated before, investment incentive tends to be frustrated by the low level of real purchasing power in an overpopulated country, while foreign trade functions to set it free from the chain of the poor domestic purchasing power.

The amount of capital equipment of a given industry depends upon the size of demand for its products.   But the latter includes not only domestic demand but also demand from abroad.   Therefore, like oil industry in the Near East an enormous demand from abroad may force it to enlarge its capital equipment to such an extent that it is abnormally large in comparision with the small domestic demand.   Not as to the countries which occupy significant positions in the world trade like the U. S. and U. K., but as to a country who has but a relatively small share in the world trade, it might be correct to state that the foreign demand for her products is determined independently of its domestic demand. Thus it is quite natural that the over-populated country who has difficulties in finding way for capital formation welcomes expansion of exports as a golden opportunity to inspire investment activity in the country.

Here comes the problem what sort of conditions are necessary for an over-populated country to expand her exports at a desired rate. Theoretically it is quite simple to give answer to this question.   Since the exports of a country generally is considered to be dependent upon the levels of income in foreign countries as well as upon the ratio of the cost of production at home to the international price, to increase her exports either or both of the following two conditions must be satisfied, viz., increase in the incomes abroad and decrease in the costs of production at home in comparison with the international price.   Rapid and sufficient increases in the incomes abroad forms the most favourable circumstances for an over-populated country.   In such a case a country can realize rapid increases in exports without too much effort for it nor

having any friction with foreign countries.

But if an over-populated country is not satisfied in growing up in an ordinary way, but wants to catch up with the advanced countries of high economic level, it will be necessary for her to expand exports at a higher rate than the increase in the incomes of foreign countries. In order that the over-populated country may have a larger share in the world trade it must offer a better terms to the customers than the competitors, and this could only be done through the reduction of the supply price, in other words, by making the terms of trade more unfavourable to her.

However, to reduce the supply price, either reduction of the costs production or exchange depreciation is necessary so long as enterpreneurs are reluctant to sacrifice their profits. Reduction of costs is achieved only through increase in productivity or wage-cut.

According to our analysis attempted at in Section II, an increase in labor productivity is realized when each worker uses more capital. However, as long as wage rate is not raised, to ask enterpreneurs to use more capital is just equal to ask them to give up to pursue the maximum profit obtainable under a given condition. An enterpreneur who seeks the maximum profit, if he is given a chance to get additional capital, will choose the way to increase employment to be combined with the additional capital, instead of choosing the way to increase capital per worker, with employment kept unchanged. It is often pointed out that among so called modern enterprises of big scale in Japan there are many which can be deemed not more than a mere gathering of small workshops.[14] The reasons accounting for it may be clear from the above analysis.

Needless to say, in an over-populated country, there exists a powerful inducement toward wage-cut. Therefore, if our analysis is correct, the enterprises in such a country are not necessarily positive in increasing productivity. It is, however, a hasty conclusion to decide that they are so in reality, because in the above discussion we set aside two significant

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[14] However, big enterprises still hold superiority over smaller ones in finance and sales activity.

factors in economic growth, viz., the advantage of large scale production and progress of technique. When we discussed in the above that the maximum profit rate can be obtained when labor and capital are combined in such a manner that the rate of productivity increase resulted from the increase in capital per labor comes to be equal to the rate of profit, it is there assumed that an enterprise can freely increase its capital equipment until it takes up the last unit of additional profit.[15]

But this does not always hold true. An enterprise must obtain the necessary fund by borrowing except when it can use its internal reserve, and its capability to get loan is naturally restricted by the amount of its assets.[16] Therefore, inspite of the fact that the rise in productivity is increasing, or though it is diminishing, it is still higher than the average profit rate, the enterpreneur, giving up mechanization of their plants, often are compelled to use a less mechanised technique due to his poor capacity to procure funds.

However, if situation has changed favorably to enable him to obtain additional funds, he may find it profitable to promote a sort of mechanization which has so far been unwillingly given up. In an over-populated country, as stated above, accumulation of domestic capital is relatively small and that is itself a cause for difficulties of borrowing from abroad. Such situations may be common for various sectors of industry. Even in an over-populated country the motive toward higher productivity is still alive in the mind of entrepreneurs.

In an over-populated country, another chance for higher productivity is in the technical progress. It is very hard to define what is technical progress, but here it is understood as a new possibility of making productivity higher with a given stock of capital per labor. Whether a new technique is actually put into practice or not is dependent

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15 If an enterprise can change without any friction the number of laborers to be combined with a given quantity of capital as it adopts a new technique, the things as detailed below will not take place. But even where the labor union is not so powerful, the labor policy of an enterprise is usually restricted by the resistance on the side of laborers to a certain extent.

16 Scitovsky, T., *Welfare and Competition*, London, 1952, pp. 193-200; Robinson, J., *The Rate of Interest*, pp. 83-5; Kalecki, M., *Theory of Economic Dynamics*, London, 1954, pp. 91-5.

upon the possibility that it raises the profit rate with a given wage rate. If a rise in the profit rate cannot be expected thereby, the adoption of a new technique will be postponed until the wage rate will change to an extent that it makes its adoption profitable.

Now, when a new technique is brought into practice, an entrepreneur has a chance to reduce the price of his products without sacrificing his profit. But we must also bear it in mind that technical progress often accompanies the friction between capital and labor. Technical progress is the progress "favorable", "neutral", or "unfavorable", to capital according to whether it increases, maintains, or decreases, the amount of capital per worker.[17]

In the first case, an additional fund is needed to adopt an advanced technique with employment being kept unchanged, while in the second, no additional fund is necessary and in the third case there is even a possibility of saving capital. Therefore, in order that an over-populated country suffering from lack of capital may alleviate its over-population, technical progress "unfavorable to capital" is most desirous. But there are still obstacles to be overcome. Backward conntries usually rely on the advanced countries for their technical progress and the new techniques for them are usually imitations of those developed by western countries. However, in an advanced country where abundant supply of capital is available while wage rate is high, entrepreneurs tend to use a technique which requires comparatively large amount of capital per labor. So, if an over-populated country desires a rapid progress of its technique, it is forced to introduce a technique "favorable to capital" which has been developed in an advanced country. If it wants to avoid its un-favorable effect upon the domestic employment or upon the domestic capital, it must achieve by its own efforts a progress "neutral" or "unfavorable" to capital. But such a progress will be very slow.

Other methods to reduce supply price of domestic products in com-petition with abroad are wage-cut and exchange depreciation. Funda-mentally speaking, the above two methods are alternative to each other. When wage rate is reduced, profit rate will go up if selling price is kept

17 Robinson, J., *The Rate of Interest*, p. 50.

unchanged and the effort for higher mechanization will be slackened unless it gives a chance for higher profit rate. Thus an enterprise may find room for reduction of supply price without decreasing its profit rate. Exchange depreciation purports to cause a direct reduction of supply price once for all by a monetary operation of changing the exchange rate.

In order to increase productivity, it has often been demanded to increase the stock of capital. However, the reduction of wage rate does not put any pressure upon capital, on the contrary, chances are that the amount of capital to be combined with a unit of labor may decrease. Wage cut, however, will be subject to a strong resistance on the part of laborers. Exchange depreciation brings about the same benefit to the enterprises as wage-cut, while aboiding the head-on collision between capital and labor. However, there is no substantial difference between the above two methods, in that both of them will ultimately cause disadvantage over the labor by decreasing real wage rate. Exchange depreciation will boost domestic prices of imported goods. In a country where her imports are demand-inelastic such as foodstuffs, exchange depreciation will bring about a notable deterioration of people's living level. If demand is elastic, imports will be given up. The money which has been spent upon imported goods will probably be directed toward the purchase of domestic products which are substitutional for them and if productive capacity is not sufficient to cover the increase in demand, the prices of domestic products will soar up and consequently real wage will relatively decrease.

Laborers in an over-populated country who are very cheaply paid will not be able to tolerate such a situation and demand for wage increase to resist against it. Thus wage increase, together with the increase in prices of imported capital goods, may function to offset the avantages of exchange depreciation.

We put particular importance upon reduction of export prices as the means toward rapid expansion of foreign trade, but it is not an easy way. If we want to increase our productivity, it will be a prerequisite to promote capital accumulation, which is the very object of trade expansion. If we resort to wage-cut or exchange depreciation, it will cause

deterioration of laborers' living level the improvement of which is the very object of our study.

Summarizing our analysis, the way for the relief of over-population is not a straight and easy way, but a continuance of interchanging advances and retreats.

CONTINUITY CONDITIONS OF
PREFERENCE ORDERING

TAMOTSU YOKOYAMA

As the continuity conditions of preference ordering we have two conditions. One is Prof. Herman Wold's axiom of continuity and the other is Prof. Gerard Debreu's condition. Each of the two conditions is sufficient for existence of continuous, order-preserving function.[1] In this paper we shall show that if the preference field is non-negative orthant of n-dimensional euclidean space and the preference ordering satisfies the strict monotonicity, then above two conditions are equivalent to each other. We shall next give an elementary proof of the continuity property of Prof. Wold's preference function and also discuss the relations between uniformity condition which we have introduced in our preceding paper and these two continuity conditions.

I. Introduction

We consider non-negative orthant of n-dimensional euclidean space, the points of which represent various combinations of n different goods. By preference ordering here we mean a relation r defined in this non-negative orthant which satisfies following conditions:

(1)　For all X and Y, either XrY or YrX.

(2)　For all X, XrX.

(3)　XrY and YrZ imply XrZ.

(4)　If $X>Y$, that is, if $x_i \geq y_i$ for all i and $x_i \neq y_i$ for some i, then "$not\ YrX$".

Conditions (1)–(3) imply that the relation r is a total ordering and condition (4) implies that the relation r has the strict monotonicity property. From this relation r, X ind. Y (i.e. X is indifferent to Y) is defined to mean XrY and YrX, and X pref. Y (i.e. X is preferred to Y) is defined to mean "$not\ YrX$".

Now Prof. Wold's axiom of continuity and Prof. Debreu's condition

are followings:

Prof. Wold's Axiom of Continuity: Let $q^{(1)}$, $q^{(2)}$, $q^{(3)}$ be any budget such that $q^{(1)}$ is preferred to $q^{(2)}$, and $q^{(2)}$ to $q^{(3)}$. Let L be the line in the budget space that connects $q^{(1)}$ with $q^{(3)}$. Then L passes through a budget q that is equivalent (indifferent) to $q^{(2)}$.

Prof. Debreu's Condition: For every Y the sets $\{X/XrY\}$, $\{X/YrX\}$ are closed.

Because we are considering the relation r defined in the non-negative orthant of euclidean space, convergence is defined by using euclidean distance and we can define a point of accumulation of a set by using this distance. Thus a set is closed if its points of accumulation are all contained in it. From this, as Prof. Debreu wrote, the condition that the set $\{X/XrY\}$ is closed is equivalent to the more intuitive condition: Let $\{X_i\}$ be any sequence which converges to X. Then $X_i r Y$ means $X r Y^{(2)}$.

II.   Relation Between Two Continuity Conditions

We shall prove that if the preference field is the non-negative orthant of n-dimensional euclidean space and the preference ordering satisfies the strict monotonicity, then Prof. Wold's axiom of continuity and Prof. Debreu's condition are equivalent.

First we shall show that if Prof. Debreu's condition is satisfied, then Prof. Wold's condition is also satisfied. Let $q^{(1)}$ *pref.* $q^{(2)}$ *pref.* $q^{(3)}$. From Prof. Debreu's condition, the sets $E_1 = \{q/qrq^{(2)}\}$, $E_2 = \{q/q^{(2)}rq\}$ are closed. Let L be the line segment which connects $q^{(1)}$ with $q^{(3)}$ and consider the intersection F of the two closed sets E_1 and L. Then F is closed. And as $q^{(3)} \overline{\in} E_1$, F is the proper subset of L. Let Z be the point on L whose distance from $q^{(3)}$ is equal to $\inf_{X \in F} \rho(X, q^{(3)})$. As F is closed, it follows that $Z \in F$ which implies that Z is an element of E_1 which lies on L. From the definition of Z, the points which lie between Z and $q^{(3)}$ on L are the elements of E_2. And this implies that Z is a point of accumulation of E_2. As E_2 is closed, it follows that $Z \in E_2$. Thus we have $Z \in E_1 \cap E_2$ which means Z *ind.* $q^{(2)}$.

Next we shall show that if Prof. Wold's axiom of continuity is

satisfied, then Prof. Debreu's condition is also satisfied.

First we shall show that if Prof. Wold's condition is satisfied, then for given Y the set $\{X/YrX\}$ is closed. Assume that the set $\{X/YrX\}$ is not closed. Then there exists a point of accumulation of the set $\{X/YrX\}$ which does not belong to it. Let Z be such a point. Then it must be that Z *pref.* Y. If $Y=O$, the strict monotonicity of the preference ordering means that the set $\{X/OrX\}$ consists of only one point O. And that the set $\{X/OrX\}$ is closed is quite trivial. Thus we assume $Y>O$. Then from the strict monotonicity of the preference ordering we have Z *pref.* Y *pref.* O. Prof. Wold's condition asserts that there exists H on the line segment $\overline{OZ}$ which is indifferent to Y. Because H *ind.* Y, from the strict monotonicity of the preference ordering we have $H>O$ and $Z>O$.

As $H>O$, H has some positive components. And because the line segment $\overline{OZ}$ departs from the origin and lies in the non-negative orthant, it follows that if a certain component of H is positive, then the corresponding component of Z must be positive and the latter must be larger than the former. Thus we have

$$\delta = \min_{h_j \neq 0} (z_j - h_j) > 0 .$$

Consider any point K which belongs to δ-neighbourhood of Z and also lies in the non-negative orthant. Then if $h_j \neq 0$, we have

$$z_j - h_j \geq \delta, \ |k_j - z_j| < \delta .$$

From these we get

$$k_j - h_j = k_j - z_j + z_j - h_j \geq k_j - z_j + \delta > 0 .$$

And if $h_j = 0$, from the fact that K lies in the non-negative orthant, we get

$$k_j \geq 0 = h_j .$$

Thus we have $K>H$ which implies K *pref.* H. As H is indifferent to Y, it must be that K *pref.* Y. And these mean that in δ-neighbourhood of Z there exists no point which belongs to the set $\{X/YrX\}$. This conflicts with the fact that Z is a point of accumulation of the set $\{X/YrX\}$. Thus the set $\{X/YrX\}$ contains all its points of accumulation. And this means that the set $\{X/YrX\}$ is closed.

Next we shall show that if Prof. Wold's axiom of continuity is satisfied, then for given Y the set $\{X/XrY\}$ is also closed. Again assume that the set $\{X/XrY\}$ is not closed. Then there exists a point of accumulation of the set $\{X/XrY\}$ which does not belong to it. Let Z be such a point. Then we have Y *pref.* Z. Put

$$\max(y_i, z_i) = l_i, \quad i = 1, \cdots\cdots, n.$$

Let δ be an arbitrary positive number and put

$$\{l_1 + \delta, \cdots\cdots, l_n + \delta\} = \{k_1, \cdots\cdots, k_n\} = K.$$

Then we have $K > Y$ which implies K *pref.* Y. Thus we have K *pref.* Y *pref.* Z. Prof. Wold's axiom of continuity asserts that there exists H on the line segment $\overline{ZK}$ which is indifferent to Y. As $k_j > z_j$ for all j and H lies between Z and K, it follows that $h_j > z_j$ for all j. Thus we have

$$\varepsilon = \min_j (h_j - z_j) > 0.$$

Now consider any point M which belonges to ε-neighbourhood of Z and also lies in the non-negative orthant. Then we have

$$h_j - z_j \geqq \varepsilon, \quad |z_j - m_j| < \varepsilon.$$

From these we get

$$h_j - m_j = h_j - z_j + z_j - m_j \geqq \varepsilon + z_j - m_j > 0.$$

Thus we have $H > M$ which implies H *pref.* M. As H is indifferent to Y, it must be that Y *pref.* M. And these means that in ε-neighbourhood of Z there exists no point which belongs to the set $\{X/XrY\}$ and this conflicts with our assumption. Thus the set $\{X/XrY\}$ must be closed.

The above considerations lead us to the conclusion that when the preference field is non-negative orthant of n-dimensional euclidean space and the preference ordering satisfies the strict monotonicity condition, then Prof. Wold's axiom of continuity and Prof. Debreu's condition are equivalent.

III. Continuity Property of Prof. Wold's Preference Function

We first construct Prof. Wold's preference function. Let l be the

half line through the origin which forms equal angles with all coordinate axes. Consider any point X in the non-negative orthant excepting the origin. We can always find a point K on l whose component is larger than the largest component of X. Because $K>X>O$, we have K *pref.* X *pref.* O. Using Prof. Wold's axiom of continuity and the strict monotonicity of the preference ordering we can specify X^* uniquely on the line segment $\overline{KO}$ as the point which is indifferent to X. Define a preference function by

$$u(X)=\rho(X^*,\ O),\qquad \text{for}\quad X\neq O$$

and

$$u(O)=0\ .$$

That the preference function thus defined is strictly monotonic, that is, that if $X>Y$, then $u(X)>u(Y)$ can easily be shown.

Next we shall show that the above defined preference function is continuous. Let X be any point in the non-negative orthant excepting the origin and denote the point which is indifferent to X and lies on l by X^*. Taking an arbitrary positive number ξ, we put

$$X_1=\{x_1+\xi,\ \cdots\cdots,\ x_n+\xi\}\ .$$

Let X_2 be a point on the line segment $\overline{OX}$ which satisfies $X>X_2>O$. And let X_1^* and X_2^* be the points on l which are indifferent to respectively X_1 and X_2. Then it can easily be shown that X^* lies between X_1^* and X_2^*. Thus we have

$$\eta=\min\{\rho(X_1^*,\ O)-\rho(X^*,\ O),\ \rho(X^*,\ O)-\rho(X_2^*,\ O)\}>0\ .$$

Take a positive number ε which is smaller than η and specify the two points Y_1^* and Y_2^* on l which satisfy $\rho(Y_i^*,\ X^*)=\varepsilon$, $i=1,\ 2$, wher $Y_1^*>X^*>Y_2^*$. Then we have X_1 *pref.* Y_1^* *pref.* X and X *pref.* Y_2^* *pref.* X_2. Again using Prof. Wold's condition, we can specify Y_1 on the line segment $\overline{X_1X}$ which is indifferent to Y_1^* and also can specify Y_2 on the line segment $\overline{XX_2}$ which is indifferent to Y_2^*. Here $Y_1>X>Y_2$ is evident. Then we have

$$\min\{\min_i(\ y_{1i}-x_i),\ \min_{x_i\neq 0}(x_i-y_{2i})\}=\delta>0\ .$$

Consider any point Z in the δ-neighbourhood of X which lies in the non-negative orthant. Then we have

$$|z_j - x_j| < \delta, \quad y_{1j} - x_j \geq \delta, \quad x_j - y_{2j} \geq \delta \text{ for } x_j \neq 0, \quad y_{2j} = x_j = 0 \text{ for } x_j = 0.$$

From these we get

$$y_{1j} - z_j = y_{1j} - x_j + x_j - z_j \geq \delta + x_j - z_j > 0,$$
$$z_j - y_{2j} = z_j - x_j + x_j - y_{2j} \geq z_j - x_j + \delta > 0 \quad \text{for} \quad x_j \neq 0,$$
$$= z_j \geq 0 \quad \text{for} \quad x_j = 0.$$

Because $X \neq O$, X has at least one non-zero component. Thus we have $Y_1 > Z > Y_2$. This implies Y_1 *pref.* Z *pref.* Y_2. From this we have Y_1^* *pref.* Z *pref.* Y_2^*. Again using Prof. Wold's condition and the strict mototonicity of the preference ordering we can specify Z^* on the line segment $Y_1^* Y_2^*$ which is indifferent to Z. Remembering the relations

$$u(Y_1) - u(X) = \rho(Y_1^*, O) - \rho(X^*, O) = \varepsilon,$$
$$u(X) - u(Y_2) = \rho(X^*, O) - \rho(Y_2^*, O) = \varepsilon,$$
$$\rho(Y_1^*, O) > \rho(z^*, O) > \rho(Y_2^*, O), \quad u(Z) = \rho(Z^*, O),$$

we have

$$|u(Z) - u(X)| < \varepsilon.$$

When $X = O$, specify Y on l which setisfies $\rho(Y, O) = \varepsilon$. Consider any point Z in the $\dfrac{\varepsilon}{\sqrt{n}}$-neighbourhood of O which lies in the non-negative orthant. As $Y > Z > O$, it must be that Y *pref.* Z *pref.* O. Then by Prof. Wold's axiom of continuity, there exists Z^* on the line segment YO which is indifferent to Z. Thus we have

$$u(Z) - u(O) = \rho(Z^*, O) - 0 < \varepsilon.$$

IV. Relations between Uniformity Condition and Two Continuity Conditions

Uniformity condition which we have introduced in our preceding paper is following:

Uniformity Condition: If X *pref.* Y, there exists at least one Z which satisfies Z *ind.* Y and $Z < X$.

The consumer's demand $D(P, I)$ is defined as the most preferred combination of goods such that $P.X \leq I$. As was shown already in our

preceding paper, if this uniformity condition is satisfied, we can prove that when X^* is the cheapest combination of goods among the all combinations which are preferred to or indifferent to X^*, then X^* is the consumer's demand $D(P, I = P. X^*)$

Because we have already shown in our preceding paper that Prof. Wold's axiom of continuity is sufficient for this uniformity condition and we have above shown that Prof. Debreu's condition and Prof. Wold's axiom of continuity are equivalent, Prof. Debreu's condition is also sufficient for the uniformity condition.

References and Notes

(1)   Herman Wold in association with Lars Juréen : Demand Analysis, 1953.
  Gerard Debreu : " Representation of a Preference Ordering by a Numerical Function " in Decision Processes, 1954.
(2)   Tamotsu Yokoyama :   " A Logical Foundation of the Theory of Consumer's Demand ", Osaka Economic Papers, Vol. II, No. 1. 1953.
  ”   ”   : " On Uniformity and Continuity Conditions in the Theory of Consumer's Demand", Osaka Economic Papers, Vol. III, No. 1, 1954.
(3)   We have introduced in our preceding paper the strong continuity condition : Let $\{X_i\}$ be a sequence which converges to X.   Then $X_i r Y r X$ implies X ind. Y and $X r Y r X_i$ also implies X ind. Y.   This condition is very similar to Prof. Debreu's condition and that this condition is sufficient for Prof. Debreu's condition is quite evident but the existence of Y such that $X_i r Y r X$ is too restrictive and thus Prof. Debreu's condition is far general.

  We have also introduced the weak continuity condition and discussed the relation between this condition and Prof. Wold's axiom of continuity.   But our discussion is restricted to the case where there exists X such that $\overline{X + \varepsilon_i r X r X}$.